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ECONOMIC LEAFLETS

Published monthly by the Bureau of Economic and Business Research, College of Business Administration, University of Florida, Gainesville. George B. Hurff, Editor

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VOL. XX, NO. 5 Entered as second-class matter December 6, 1941, at the post office at Gainesville, Florida, under Act of August 24, 1912. MAY, 1961

The Revolution in the Food Industries

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A revolution has taken place in the food industries. This revolution, still in process, has happened during the current generation. Although many of its changes are radical, it has come about rather gradually so that most people hardly realize that it has occurred.

Drastic changes in agriculture itself are taking place on two fronts. One is the technical front involving nutrition, genetics, insect control, mechanics, transportation, processing, storage, and others. Advances in these areas have brought about cheaper and more efficient production of agricultural materials. The other front has been economic and organizational. In this area managerial techniques have been utilized to translate technological change into mass production methods. Changes have occurred in the structure of farms as well as in the complex business organizations which market, process, and retail farm products.

The assortment of foods consumed today by the average individual in the United States varies substantially from that purchased 20 or 30 years ago. Fewer starches, such as potatoes, grains, and other products are purchased by today's housewife. Consumption of vegetables which go into salads has increased substantially. Certain protein foods such as beef and other red meats are consumed at a higher rate than in the past.

More and more processed foods are being developed. Much of the preparation and handling of these foods, formerly done in the household, is done in processing plants prior to the time the food is offered for sale. Consumers have shown a willingness to pay for "built-in maid service," a term now heard frequently.

Instant foods, prepared mixes, precut meats, frozen dinners, frozen juices, frozen vegetables, package goods, and other food items with built-in time savers have all risen very greatly in importance in the years since the end of World War II. Today's housewife spends only two and a half to three hours a day in preparing meals. This compared with five to six hours a day devoted to this chore by the average housewife of the early 1920's. The shifts in food consumption habits have served to provide a market today for many household appliances and timesaving gadgets which were not available a generation ago.

Food Consumption Habits

Prior to World War I the average per capita food consumption was 1,600 pounds annually. Today's American not only eats about 100 pounds less food annually than his grandparent of 50 years ago, but the composition of the foods consumed is substantially different. Fruits and vegetables now constitute 29 per cent of the total consumption as compared with 24 per cent in the pre-World War I period. The share of grain and potatoes fell from 32 to 17 per cent in this same period. On the other hand, the poundage of meat and fish rose from 9 to 11 per cent of the total. In 1959 the per capita consumption amounted to 160 pounds of beef, veal, pork, lamb, and mutton; 35 pounds of chicken and turkey; 198 pounds of fruits (fresh equivalent); 198 pounds of vegetables (fresh equivalent); 678 pounds of dairy products (whole milk equivalent); 106 pounds of potatoes, and 8½ pounds of sweet potatoes.

Today's consumer is able to buy a greater variety of better food for an equivalent share of his real income than he could several decades ago. Consumers in the United States spent approximately 20 per cent of their disposable income for food in 1960. Only 15 per cent of disposable income would now be required to purchase the same assortment of foods which were bought in the pre-World War II period.

Persons with high incomes generally purchase foods of higher quality with consequent higher costs than those with low incomes. But the caloric intake of high income consumers is only slightly more than that of persons in lower income groups. Substitution of more costly animal proteins for plant proteins and increased consumption of fruits and vegetables are food habits which characterize persons with above-average incomes. Recent trends indicate that a much larger proportion of the United States population will move into higher income groups. But this will not increase their demand for food to the point where they can consume our rising agricultural surpluses. Most of these surpluses are of farm commodities such as grains with declining consumer demands.

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Distribution of the Food Dollar

Of each dollar which the consumer spends for food, 39 cents are received by the farmer. The other 61 cents go to various processing and marketing agencies. For a pound loaf of white bread retailing at 19 cents, the farmer gets only 2½ cents for the wheat used to make the loaf; thus, even if nothing were paid for the wheat, the services of processing and distribution would cost the consumer 16½ cents. Over the past ten years the retail prices of most farm commodities have risen while the amount received by the farmer for the agricultural ingredients in these products has declined.

A "market basket" concept is used by the United States Department of Agriculture in computing the farmer's share of the consumer's food dollar. The "market basket" includes only the domestic, farm-produced foods for preparation and use in the home which are purchased annually by a moderate income city family of 3.3 persons. The determination of the retail value of the "market basket" is made by multiplying the average retail prices in selected cities by the physical quantities of the various domestically produced food items included in the "market basket." In the 1947-49 period the average retail value of the "market basket" was $955. The farmer's share in that period was $466 or about 49 per cent of the consumer's dollar. In 1960 the retail cost of the farm food "market basket" was $1,052. Of this amount, farmers received $408, and processing market agencies, $644. The farmer's share of the retail cost was 39 per cent. Agriculture has been in a cost-price squeeze since the period of favorable prices immediately following World War II.

Over the past 10 or 12 years the retail cost of the "market basket" has increased by slightly over 10 per cent while the farmer's share has declined, both in absolute dollar value and in percentage terms. The increase has been occasioned by additional charges brought about throughout the marketing system.

Current trends indicate a further downward movement in the farmer's share of the food dollar. This relationship is brought about by a number of factors. More specialized products and services are being demanded by American homemakers. The production and marketing of these specialized services and products require additional manufacturing, handling, and other operations in processing basic farm commodities, thereby increasing the cost. There has also been a trend toward substantial increases in the major cost items in the marketing process, particularly wage rates and transportation charges.

Food is purchased by homemakers more often than any other major item in the budget. Therefore, more attention is usually paid to changes in food prices than to changes in prices of other items. Food is a major component in the index of consumer prices published by the United States government.

The Retail Food Industry

No other industry even approaches the food industry in size. Consumer outlays for food are running in the vicinity of $75 billion a year. Approximately $50 billion of this amount represents purchases made at retail food stores; the balance is accounted for by purchases through restaurants and other institutional agencies selling foods. Expenditures for food have risen by almost 70 per cent since the 1947-49 period. Part of this increase has been accounted for by price rises as food prices have increased by about 20 per cent since then; there has also been an upsurge in the population of approximately 20 per cent over the same period.

More than three-fourths of the grocery stores in the United States today are self-service; in 1943 fewer than a fourth of them were. Supermarkets, defined as stores with $375,000 or more in annual sales, now do 69 per cent of the nation's grocery business. An average supermarket stocks some 5,000 separate items. Superettes (stores with volumes between $75,000 and $375,000 per year) did 23 per cent of the total in 1960. Small stores sold the remaining 8 per cent. Of every 100 grocery stores in the United States in 1960, 13 were supermarkets, 22 were superettes, and 65 were small stores. Over 351,000 retail food stores catered to the food needs of the population in 1960; of this total, 260,000 were grocery and combination stores and the remaining 90,000 were specialty food stores.

Both independent and chain grocery store managers have had increasing responsibilities as store size and the complexity of operations have increased. For instance, a large supermarket with 28,000 square feet (nearly two-thirds of an acre) of sales area will have 86 employees, 9 checkout counters, handle 15,000 weekly checkout transactions, and stock 7,500 items.

Today, independent grocers (stores with one to ten units) operate nearly as many supermarkets as do the chains. Although sales per supermarket averaged higher for chain stores than for independents, average sales per supermarket in each category exceeded $1,000,000 in 1960.

A gradual decline has taken place in the past 20 years in the number of small and large food stores in the United States. Nearly 450,000 food stores were operating in 1940 as compared with 351,000 in 1960. Several factors have brought about this decline in the number of stores. Store trade areas have been expanded with increased use of automobiles. Adjustments to a changing consumer market have been made by the retail food industry. Technical developments have made it possible for the food industry to provide new products and services. When a new store is opened by a chain, it often involves the closing of one or more of its older units in that community.

In 1960 the proportion of the total grocery business done by corporate chains of 11 or more stores was 39 per cent as compared with 29 per cent in 1948. Nevertheless, the percentage increase for other types of stores was much higher. In this same period the volume of wholesaler-sponsored retail buying groups rose 150 per cent. That of retailer-owned wholesale buying cooperatives rose 274 per cent. These buying groups are more fully discussed subsequently.

An increasing number of the non-chain stores in the grocery business have found that they can achieve many efficiencies in operation by affiliating with retailer-controlled buying cooperatives or wholesaler-sponsored retail buying groups. In this way they gain many of the economies of purchasing and distribution achieved by the chains. Perhaps the main competitive disadvantage of the non-chain retail food stores has been their inability to compete on equal terms with the chains in the nation's money markets. The rising costs of capital and labor have induced the management of retail grocery firms to seek new ways to obtain lower per-unit operating costs. Increases in product turnover and in sales volume have been the major means of lowering these unit costs. The effort by store management to increase volume has affected procurement practices and merchandising policies throughout the retail grocery trade.

These various changes have tended to bring about changes in conventional marketing methods and to result in an altered competitive position for buyers and sellers. One of the techniques used by the retail grocery trade is to negotiate with regular suppliers for lower prices with no changes in services when purchases are made in large quantities. Another is to request the supplier to reduce marketing services and prices. In this case, the buyer takes on certain marketing services which he believes he can perform more efficiently than the supplier. The use of specification buying has also resulted in lower buying costs and product prices. Still another technique has been the choice of different channels of supply in procuring the commodities and products purchased.

Dr. D. B. DeLoach, Professor of Agricultural Economics at the University of California, states that the competitive emphasis among retail firms is now more on customer conveniences, product qualities and varieties, and advertising than on prices. Although there is active price competition on some products and in certain areas of the country, many retailers have adopted a "follow the leader" principle of pricing.

The standard of living of a large part of our population has been improved substantially by developments in the mass merchandising of food. Improved qualities of products, wider varieties, and prices reasonably consistent with the costs of production have been brought about by the merchandising system. DeLoach states that the mass merchandising system for foods provided the only feasible means of slowing down the rate of increase of operating costs at a time when labor and capital costs were increasing.

Processing, Wholesaling, and Distribution

Processors and wholesalers in marketing their products to the retail food trade have had to change many of their operations and policies in order to satisfy the demands of their customers. Successful processing firms have found it essential to coordinate product planning, new product development and engineering with manufacturing, procurement, and sales.

Many changes have been wrought throughout agriculture and its allied marketing agencies as supermarkets have grown and developed during the past several decades. Direct buying by the chains has largely bypassed terminal market wholesale firms and procurement of food items from them. Many independent grocery stores are now affiliated with purchasing cooperatives or with voluntary groups organized by wholesale grocers. These organizations procure, assemble, finance, and distribute grocery items to stores at considerable savings because of the large volume handled.

Increased financial aid to retailers has been one technique whereby grocery wholesalers, especially the voluntary groups, have been able to expand their businesses. Voluntary wholesalers give direct aid in the form of guaranteeing loans to retailers, assuming building mortgages, leasing store buildings to retailers, extending credit to new stores, and related types of assistance. Many of these stores utilize the group name in their advertising and sell their own group brands.

Many wholesale selling facilities and methods have become obsolete. If the firm has not been able to attain volume sales through the development of its affiliated stores or switched over to become a retailer-owned facility, often it has been forced out of business. Of the some 2,500 wholesale grocery firms in the United States in 1960, 1,760 were unaffiliated with cooperative stores or voluntary groups. Voluntary group wholesalers numbered 525, and cooperative wholesalers, 200. Two-thirds of the nearly $12 billion in wholesale grocery sales were done by the voluntary and cooperative wholesalers. Their sales in 1960 were up approximately 13 per cent over 1959, while those of the unaffiliated group were down almost 5 per cent.

At last report net profits as a percentage of sales were only 0.9 per cent for food wholesalers. This compared with a figure of 1.0 per cent for retail food chains and 2.2 per cent for food processing companies. A substantial amount of integration of functions and services has come about in the 15 years since the end of World War II. Many retail grocery firms own or control the plants in which many food items sold in their stores are processed. Other business groups have also brought about centralized control or ownership of facilities used in the manufacturing and distributing process.

Buyers for grocery organizations try to minimize the services performed at the store level and to assure continued supplies of items which meet trade specifications. To accomplish this they generally stress standardized high quality. Unless merchandise meets their requirements, the buyers are usually not willing to purchase it except at a discount. Often they will not take small quantities of lower quality or nonstandardized produce at prices favorable to producers. Buyers also want supplies of commodities over a continued period of time from a limited number of regular suppliers. These practices reduce their procurement, distribution, and merchandising costs.

As a consequence of these procedures and other technological advances elsewhere in merchandising, small producers who wish to sell independently have found it increasingly difficult to meet the buying specifications of chains and other large grocery buying organizations. Generally, large producers, marketing cooperatives, or marketing firms with ample supplies can meet buyers' specifications better than firms with small volumes.

These changes have tended to speed up the trend towards centralized control or management of two or more phases of production and marketing. Centralized management of the production, handling, processing, and merchandising of affected commodities has been brought about by business firms desiring firmer control over related production and marketing processes.

Changes at the Farm Level

Increased commercialization and specialization are taking place throughout agriculture. The larger size of farms is an indication of this trend. Farms now have more acres, more capital assets, and more equipment. The average investment per worker, including farm proprietors, is now more than $21,000. The decrease in the number of farms has been accompanied by increased yields in the production of almost all plant and animal products.

Fewer people are required to perform the various functions on the farm in modern agriculture. One farm worker today can produce food for 24 people. In 1940 this worker could produce enough for only 11 people. In 1959, only one out of eight persons in the United States was a farm resident. This compared with a ratio of one in three in 1910. During the period from 1950 to 1959 an average of 800,000 people left the farm each year; this was more than double the average annual 400,000 person natural increase of the farm population. Fewer opportunities are available for people to make a livelihood in farming comparable with that in other pursuits. There were fewer than 4 million farms in the United States in 1958. The 328 million acres of crops harvested in that year was only 3 million more than the number harvested in 1910. Man-hour requirements for agriculture in 1958 were less than half of the man-hours in 1910. The output of agriculture in 1958 was double that in 1910, whereas population had increased by a slightly smaller proportion.

Increases in productivity in agriculture have not been accompanied by similar increases in the demand for farm products. During the last 40 years animal power on farms has been almost completely displaced by mechanical power. This has freed many millions of acres of land, formerly devoted to the production of hay, grain, and pasture grasses utilized by farm work animals, for the production of food, including poultry and meat animals, for direct human consumption.

Agricultural production is a biological phenomenon. A farmer is unable to cut off production of crops or livestock in response to drops in price levels; often a farmer finds it necessary to increase production when prices fall. Since he has a large capital investment, he finds it necessary to produce more in order to meet the interest and other carrying charges on this investment. The nature of the demand for many farm products is an inelastic one; even with large quantities and lower prices consumers often increase consumption very slightly. As a result, farmers may receive smaller total returns for large crops than for small ones. Farm prices and incomes have been declining in recent years.

The increased application of science in agriculture with the consequent higher productivity, the declining level of prices for agricultural products, and the increase in off-farm input requirements have placed a premium on management skills. Those farm operators who have been successful and who have met the challenge posed by the technological and managerial revolutions in the food industries are those who have made the necessary adaptations in their production and marketing practices. They have adopted the latest findings from research in the area of technology and have adapted their business organizations to make the maximum profits from their efforts. As further technological developments are evolved, superior management will likely play a much more important role than it has in the past.

As farms become more commercialized and integrated with other agencies in the agribusiness sector of the economy, their dependence on that sector increases. In 1959 farm inputs purchased from off-farm sources represented 63 per cent of the total; this was a rise from 46 per cent in 1940.

Most of the technological advances in agriculture have had their origin in the research conducted by the state agricultural experiment stations, the United States Department of Agriculture, and a multitude of private firms and research organizations. The public has a stake in agricultural research because a large part is conducted by the United States Department of Agriculture and the state agricultural experiment stations from tax supported revenues. The initial benefactors of research results are undoubtedly the farmers who adopt the new technologies to improve their efficiency in production and marketing. Later, as other farmers adopt this technology, additional supplies of the commodity are brought on the market, thereby bringing to the consumer larger quantities of improved commodities at lower prices.

Various suggestions have been made that, in view of the large surpluses of many farm products, a moratorium be declared on agricultural research. However, the commodities involved in the agricultural support programs constitute only about 25 per cent of the volume of agricultural production. New break-throughs and developments relating to the production, processing, and marketing of agricultural products can mean additional sources of income not only to agricultural producers, but also to suppliers of products and services utilized in agriculture and to the handlers, processors, transportation agencies, retailers, and other organizations involved in the production and marketing of agricultural commodities. These will also mean better and cheaper foods for the general public.

Integration of Functions

Decisions which formerly were made by producers increasingly are being made by other business firms as the integration process gains momentum. Much of the decision-making and risk-taking has been assumed by the firms which have integrated other levels of production, processing, and marketing with their own. Thus, the prospects for many agricultural producers to make profits is now controlled to a large extent by other individuals and firms.

Integration of production and marketing functions, as noted earlier, has become widespread as farmers and users of farm products have made changes in business practices in order to adapt to the new conditions facing them. The citrus industry in Florida is a prime example of vertical integration in agriculture. There has been more vertical integration in the citrus industry and for a much longer period than most people realize. Currently the two largest citrus processing firms in the state contract with grower-bargaining cooperatives for the major portion of their fruit. Several large processing firms own many orange groves.

Most of the other large citrus processing firms are federated cooperatives whose members are fresh fruit packing houses. These packing houses are either regular corporations, cooperative corporations, or individually owned business firms. Cooperative packing houses usually provide a complete grove care service for their members. Such operations as cultivation, pruning, fertilization, irrigation, insect and disease control, picking, and hauling are included. Furthermore, the cooperative either advises with the member or actually makes the decisions with respect to all cultural practices. Many growers who are not members of cooperatives obtain these same services from private or corporate grove caretakers.

Outlook

The revolution which has taken place in the food industries has affected farmers, middlemen, processors, and the retail grocery trade as well as consumers. The adoption of technological advances, coupled with consumer acceptance of and demand for the goods and services developed through this technology, has had far-reaching effects on all components of the food industry. Widespread changes in economic organization have also come about.

It is anticipated that the integration of production and marketing functions brought about by the adaptation of agribusiness organizations to changing supply and demand conditions will continue to expand. Even now, the meat industry is joining the poultry and fruit and vegetable processing industries in developing a substantial degree of integration. As the years pass, many further economic and technological changes can be expected.